# Physicians in health care management: 4. Case Mix Groups and Resource Intensity Weights: physicians and hospital funding

**George H. Pink, PhD; Hildo B. Bolley, MSc**

In the second of two articles on Case Mix Groups (CMGs) and Resource Intensity Weights (RIWs) the authors describe how these measures are used to adjust the funding of hospitals in Ontario. Because CMGs and RIWs are based on medical chart information concerning diagnoses, concurrent illnesses and main procedures the role of physicians in recording this information is important to the outcome for hospital funding. CMGs and RIWs provide the basis for the calculations of the average cost per weighted case for hospitals and for groups of comparable hospitals. The Ontario Ministry of Health originally gave equity adjustment payments to hospitals with low average costs per weighted case to raise their funding toward norms of comparable hospitals. However, it is now proposed that hospitals with high average costs per weighted case be targeted for budget cuts. In the face of greater case-mix-based hospital funding in the future physician recording of information will be ever more critical.

Dans le deuxième de deux articles sur les groupes mixtes de cas (GMC) et les facteurs de pondération de la teneur en ressources (PTR), les auteurs décrivent comment le financement des hôpitaux en Ontario est rajustér en fonction de ces mesures. Comme les GMC et les facteurs de PTR sont fondés sur des renseignements tirés des dossiers médicaux et qui portent sur les diagnostics, les affections simultanées et les principales interventions, le rôle que jouent les médecins dans la consignation de ces renseignements est important pour le financement des hôpitaux. Les GMC et les facteurs de PTR servent de base de calcul du coût moyen par cas pondéré pour les hôpitaux et les groupes d'hôpitaux comparables. Le ministère de la Santé de l'Ontario accordait à l'origine des rajustements aux hôpitaux dont les coûts moyens par cas pondéré étaient faibles afin de porter leur financement au niveau de ceux des hôpitaux comparables. Or, on propose maintenant que les hôpitaux dont les coûts moyens par cas pondéré sont élevés soient la cible de compressions budgétaires. Étant donné qu'à l'avenir, le financement sera basé de plus en plus sur les GMC, la consignation des renseignements par les médecins joue un rôle encore plus critique.

In a previous article[1] we stated that in the 1990s physicians in Canadian hospitals will be more involved than ever in planning and management; their participation will be crucial to making effective financial decisions within and among hospitals.

Case Mix Groups (CMGs) and Resource Intensity Weights (RIWs) (registered trade marks of the Hospital Medical Records Institute [HMRI]) provide data concerning the relation between the medical and financial dimensions of a hospital. CMGs define different types of hospital inpatients (the medical dimension), and RIWs estimate the relative resources used by each patient type

*Dr. Pink is associate professor and Mr. Bolley lecturer in the Department of Health Administration, Faculty of Medicine, University of Toronto, Toronto, Ont.*

*Reprint requests to: Dr. George H. Pink, Department of Health Administration, Rm. 2028, McMurrich Building, University of Toronto, Toronto, ON M5S 1A8*

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(the financial dimension). Understanding these tools is important because the information physicians enter on an inpatient medical chart directly affects hospital funding in Ontario and Alberta, and may soon affect hospital funding in other provinces, and because CMGs and RIWs provide physicians and managers with better information with which to plan and manage hospital case mixes in accordance with strategic and operational plans.

The previous article described why CMGs and RIWs were developed and showed the calculation of RIWs for typical and atypical cases. This article builds on this foundation by describing the current method of hospital funding adjustment in Ontario and the physician's role in recording information.

## Hospital funding in Ontario

Since the system of global hospital budgets was introduced across Canada in the early 1970s, questions have been raised about the fairness of funding determination, for both base budgets and annual increments. These questions have focused on several perceived shortcomings of the system: the imbalances that existed when the global budgets were established and the further distortions caused by annual increases in budgets to account for inflation, the allocation of growth funding based on imprecise measures of the increase in each hospital's workload, the inadequate provision for demographic pressures, the inconsistency of government funding of hospital deficits and the variation in funding of new and expanded programs.

In November 1988 the Ontario Hospital Association, the Ontario Council of Teaching Hospitals and the Ontario Ministry of Health (OMH) asked the HMRI to develop a measure of hospital output that would be fairer and more flexible than current measures. After conducting research into tools used to determine funding in US hospitals, such as diagnosis-related groups and New York Service Intensity Weights, the HMRI developed RIWs. RIWs were first used in early 1990 to determine growth and equity funding of Ontario hospitals. The

Table 1: Number of weighted cases for a sample hospital

| | | No. of cases | | | | | |
|---|---|---|---|---|---|---|---|
| | | Typical | | Atypical | | Total | |
| CMG* | RIW† | Actual | Weighted‡ | Actual | Weighted§ | Actual | Weighted |
| 1. Craniotomy procedures, no complications | 2.8390 | 8 | 22.71 | 2 | 6.13 | 10 | 28.84 |
| 2. Craniotomy procedures, complications | 5.6915 | 14 | 79.68 | 1 | 8.82 | 15 | 88.50 |
| 3. Spinal procedures | 2.1364 | 31 | 66.23 | 3 | 42.75 | 34 | 108.98 |
| 4. Extracranial vascular procedures | 2.2021 | 43 | 94.69 | 4 | 1.40 | 47 | 96.09 |
| 5. Ventricular shunt revision | 1.3633 | 126 | 171.78 | 7 | 30.69 | 133 | 202.47 |
| 6. Carpal tunnel release and special nervous system procedures | 0.5648 | 398 | 224.79 | 6 | 14.19 | 404 | 238.98 |
| 7. Peripheral, cranial, other nervous system procedures, no complications | 1.4840 | 62 | 92.01 | 9 | 52.28 | 71 | 144.29 |
| 8. Peripheral, cranial, other nervous system procedures, complications | 2.3268 | 16 | 37.23 | 7 | 3.47 | 23 | 40.70 |
| 9. Spinal disorders and injuries | 1.3213 | 54 | 71.35 | 5 | 5.36 | 59 | 76.71 |
| 10. Neoplasm of nervous system | 1.4100 | 79 | 111.39 | 8 | 9.50 | 87 | 120.89 |
| Total | | 831 | 971.86 | 52 | 174.59 | 883 | 1146.45 |

*CMG = Case Mix Group.
†RIW = Resource Intensity Weight.
‡Calculated by multiplying actual cases by the RIW.
§Each atypical case in a CMG has a unique RIW; therefore, the weighted number is the sum of the RIWs in the CMG.

principle underlying equity funding is that hospitals providing comparable acute inpatient services have similar resource needs and are, therefore, entitled to equitable funding.

The adjustment of hospital funding is based on average cost per weighted case, which is calculated in three steps. First, the number of weighted cases for the hospital is determined from annual HMRI data about its inpatient caseload. After each patient is discharged the physician identifies the most responsible diagnosis, secondary diagnoses, concurrent illnesses and main procedures used. These data, recorded on the HMRI abstract, determine which CMG and RIW are assigned to each case. The CMG data for all cases in a year are then aggregated to produce the annual hospital caseload.

Consider the annual case data for a sample hospital, shown in Table 1. For typical cases in CMG 1 (craniotomy procedures, no complications) the number of cases (8) is multiplied by the RIW (2.8390) to yield 22.71 weighted cases. For atypical cases in CMG 1 each case has a unique RIW, and the sum is 6.13 weighted cases. Therefore, the annual hospital workload in CMG 1 is 28.84 weighted cases. The weighted cases for each CMG are then aggregated to determine the annual hospital workload (1146.45 weighted cases for the sample hospital).

A useful ratio called the case mix index (CMI) is calculated by dividing the total number of weighted cases by that of actual cases. From the data in Table 1 the CMI for this hospital is 1.29, which means that one of the hospital's patients uses on average 1.29 times as many resources as the average typical patient in a Canadian hospital. The CMI can be calculated for a hospital, a program, a service or any other hospital unit.

The second step is to determine the hospital acute inpatient cost by subtracting all expenses for nonpatient, outpatient and long-term care from the total hospital cost (Table 2). (Weights for outpatient workload have not yet been implemented.)

In the third step the acute inpatient cost is divided by the number of weighted cases (determined in the first step). For our sample hospital the average cost per weighted case is $2004 (Table 3).

As well, the average cost per weighted case for each "peer group" of hospitals in the province is calculated. Each Ontario acute care hospital is assigned to one of seven peer groups: teaching hospitals with high CMIs, teaching hospitals with low CMIs or hospitals with 400 or more beds, 200 to 399 beds, 100 to 199 beds, 50 to 99 beds or less than 50 beds. For the peer group to which our sample hospital belongs the average cost per weighted case is $2064 (Table 3).

Table 2: Acute inpatient cost for the sample hospital

| Item | Cost, $ | |
|---|---|---|
| Total hospital costs | | 2 500 000 |
| Minus nonpatient care expenses | | |
| Research | 5000 | |
| Cafeteria | 10 000 | |
| Non-shareable depreciation | 2500 | |
| Building depreciation | 4500 | |
| Hospital share of employee benefits | 750 | |
| Total patient-related expenses | | 2 477 250 |
| Minus outpatient expenses | | |
| Surgical day care | 17 500 | |
| Ambulatory care | 42 500 | |
| Diagnostic/therapeutic services | 59 000 | |
| Medical staff remuneration | 12 500 | |
| Administration/support services | 15 000 | |
| Total inpatient expenses | | 2 330 750 |
| Minus long-term care expenses | 33 500 | |
| Acute inpatient cost | | 2 297 250 |

## Physician's role

Physicians have a critical role in determining the average cost per weighted case; they identify the most responsible diagnosis, secondary diagnoses, concurrent illnesses and main procedures, which determine the assignment of CMGs and RIWs.

Suppose physicians in XYZ Hospital consistently fail to record in medical charts complications in typical cases involving craniotomies. What are the effects of

Table 3: Average costs per weighted case for individual hospitals and a hospital peer group

| Hospital | Total cost, $ | Acute inpatient cost, $ | No. of weighted cases | Case mix index (CMI) | Average cost per weighted case,* $ |
|---|---|---|---|---|---|
| A | 2 000 000 | 2 100 000 | 1 000 | 1.2700 | 2 100 |
| B | 2 250 000 | 2 200 000 | 1 050 | 1.2800 | 2 095 |
| XYZ | 2 500 000† | 2 297 250† | 1 146 | 1.2933 | 2 004 |
| C | 2 750 000 | 2 400 000 | 1 175 | 1.3000 | 2 043 |
| D | 3 000 000 | 2 500 000 | 1 200 | 1.3100 | 2 083 |
| Total (peer group) | | 11 497 250 | 5 571 | | 2 064 |

*Calculated by dividing the acute inpatient cost by the number of weighted cases. For the peer group the sum of the acute inpatient costs is divided by the total number of weighted cases.
†From Table 2.

this oversight on weighted cases and on the average cost per weighted case? As shown in Tables 4 and 5 XYZ Hospital has 40 fewer weighted cases than it would have if physicians had recorded the complications, and its average cost per weighted case has increased by $73 because total weighted cases (the denominator) is lower than it should be. If physicians in other hospitals do not fail to record complications XYZ Hospital's average cost per weighted case is relatively higher and the hospital is deemed relatively less efficient.

Of course, this example is contrived — the effects of poor case recording on the average cost per weighted case in a particular hospital will depend on the magnitude of the recording problem, the number and types of physicians, the case mix and the volume of cases. Regardless of these factors, the physician's role is critical to ensuring that the information recorded in medical charts is complete, accurate and relevant and, thus, that the hospital receives the credit it is due.

## Equity funding of Ontario hospitals

In the first four rounds of equity funding (1989 to 1993) the aim was to augment the resources of hospitals with low average costs per weighted case. If a hospital's average cost per weighted case was greater than the average for its peer group the hospital was not entitled to an equity adjustment. However, if a hospital's average cost per weighted case was lower than the average for its peer group, the imbalance — the difference between the hospital's cost per weighted case and the average for the peer group — was calculated. The hospital received an equity adjustment equal to its share of the total imbalances of all hospitals multiplied by the equity funds available. If the hospital had received an equity payment in the previous year, this amount was subtracted from that of the current year. The hospital received a cheque for the equity adjustment and had its global budget permanently increased by this amount.

Table 4: Number of weighted cases in the sample hospital when physicians record and fail to record complications in charts of patients having undergone craniotomy procedures (CMGs 1 and 2)

| Variable | RIW | No. of cases | |
|---|---|---|---|
| | | Actual | Weighted |
| Complications recorded | | | |
| CMG 1 | 2.8390 | 8 | 22.71 |
| CMG 2 | 5.6915 | 14 | 79.68 |
| Total | | 22 | 102.39 |
| Complications not recorded | | | |
| CMG 1 | 2.8390 | 22 | 62.46 |
| CMG 2 | 5.6915 | 0 | 0 |
| Total | | 22 | 62.46 |

This program of equity adjustments (known as Ontario transitional funding) had three phases. In the first phase, equity adjustments were calculated in October 1989 based on data from the 1987–88 fiscal year. As a result, $25 million in equity funding was distributed to Ontario hospitals in March 1990. In the second phase $40 million was distributed in February 1991 based on 1988–89 data, and in the third phase $60 million was distributed in February 1992 based on 1989–90 data. Although Ontario transitional funding ceased on Mar. 31, 1992, the responsibility for equity funding was assumed by the Hospital Funding Committee (HFC), a subcommittee of the Joint Planning and Policy Committee of the OMH and Ontario Hospital Association. The HFC subsequently recommended the distribution of $21 million in equity funding, based on 1990–91 data, to Ontario hospitals in October 1992.

After this round of funding the Ontario government, facing serious fiscal problems, made unprecedented net reductions in hospital revenues. Ontario Health Minister Frances Lankin announced in the autumn of 1992 that base operating budgets would be capped at the 1992–93 levels for the 1993–94 and 1994–95 fiscal years; further spending control measures were announced in the spring of 1993. These actions triggered serious discussions about the need to reallocate scarce hospital funds to promote the appropriate use of available resources and to further the principle of funding equity.

In November 1993 the HFC recommended such re-

Table 5: Average costs per weighted case for individual hospitals and a hospital peer group when physicians in one hospital fail to record complications in cases of craniotomy

| Hospital | Total cost, $ | Acute inpatient cost, $ | No. of weighted cases | CMI | Average cost per weighted case, $ |
|---|---|---|---|---|---|
| A | 2 000 000 | 2 100 000 | 1 000 | 1.2700 | 2 100 |
| B | 2 250 000 | 2 200 000 | 1 050 | 1.2800 | 2 095 |
| XYZ | 2 500 000 | 2 297 250 | 1 106 | 1.1386 | 2 077 |
| C | 2 750 000 | 2 400 000 | 1 175 | 1.3000 | 2 043 |
| D | 3 000 000 | 2 500 000 | 1 200 | 1.3100 | 2 083 |
| Total (peer group) | | 11 497 250 | 5 531 | | 2 079 |

allocation,[2] to be made in two steps. First, the committee identified hospitals for which OMH funding was to be reduced. Hospitals within a peer group were ranked from those with the lowest cost per weighted case to those with the highest for each of 5 years. A hospital was identified for a reduction in funding if its average rank over the 5 years was greater than the critical rank[3] for its peer group and if its average cost per weighted case in the 1992–93 fiscal year was in the highest 25th percentile for its peer group. The first condition identified hospitals with persistently high costs per weighted case, and the second identified those with a high cost per weighted case in the most recent fiscal year.

Second, the committee calculated the amount of the reduction in OMH funding. This was the lower of two amounts: the amount needed to reduce the hospital's cost per weighted case in 1992–93 to that of the 75th percentile for its peer group or 5% of the hospital's total costs for acute care and care of newborns (calculated by the method shown in Table 2). These limits on the reductions created a "buffer zone" above the median cost per weighted case for the peer group to allow for characteristics of individual hospitals that may not be taken into account in the formula.

Table 6 shows the calculation of the average cost per weighted case for the 1992–93 fiscal year for hospitals in three peer groups (teaching hospitals with high CMIs, teaching hospitals with low CMIs and hospitals with 400 or more beds). With the use of this method, five hospitals in these three peer groups were targeted for reductions in their 1994–95 funding — the Wellesley Hospital, the Toronto Hospital, Mount Sinai Hospital, St. Joseph's Health Centre and Toronto East General and Orthopaedic Hospital, Toronto. Overall, 22 hospitals were recommended for such cuts, which would result in a total reduction of $21 522 013 (Table 7).

Although the hospitals affected would find these reductions painful, the recommended decreases could have

Table 6: Average cost per weighted case for Ontario teaching hospitals and hospitals with 400 or more beds (peer groups 1 to 3)[2] in 1992–93

| Hospital | Total cost, $ | Acute inpatient cost, $ | Weighted cases | Average cost per weighted case, $ |
|---|---|---|---|---|
| Teaching hospitals with a high CMI | | | | 3 339 |
| Hamilton Civic | 231 080 185 | 164 826 912 | 49 073 | 3 359 |
| Kingston General | 123 153 534 | 83 229 312 | 26 478 | 3 143 |
| University, London | 143 230 421 | 95 301 411 | 27 752 | 3 434 |
| Victoria, London | 239 661 069 | 148 474 409 | 43 756 | 3 393 |
| Ottawa Civic | 257 212 743 | 179 721 266 | 52 637 | 3 414 |
| Ottawa General | 156 746 190 | 100 103 242 | 32 728 | 3 059 |
| St. Michael's, Toronto | 159 944 007 | 98 344 439 | 30 544 | 3 220 |
| Toronto* | 471 360 850 | 263 993 396 | 76 554 | 3 448 |
| Wellesley, Toronto* | 130 653 951 | 76 702 643 | 22 261 | 3 446 |
| Sunnybrook Health Science Centre, North York | 251 227 389 | 107 758 413 | 33 085 | 3 257 |
| Teaching hospitals with a low CMI | | | | 3 185 |
| Chedoke–McMaster, Hamilton | 193 914 259 | 70 551 634 | 21 410 | 3 295 |
| St. Joseph's, Hamilton | 154 660 574 | 89 342 331 | 30 239 | 2 955 |
| Hotel Dieu, Kingston | 57 918 341 | 35 765 691 | 12 199 | 2 932 |
| St. Joseph's Health Centre, London | 134 315 305 | 92 987 097 | 28 409 | 3 273 |
| Mount Sinai, Toronto* | 144 294 196 | 93 510 650 | 27 703 | 3 376 |
| Womens' College, Toronto | 82 185 448 | 50 859 714 | 15 992 | 3 180 |
| Hospitals with 400 or more beds | | | | 2 488 |
| Peel Memorial, Brampton | 96 968 337 | 55 789 263 | 24 011 | 2 323 |
| Kitchener–Waterloo, Kitchener | 97 190 985 | 55 555 341 | 22 126 | 2 511 |
| Mississauga | 108 956 889 | 60 978 579 | 28 217 | 2 161 |
| Oshawa General | 115 723 747 | 59 185 435 | 26 359 | 2 245 |
| St. Joseph's Health Centre, Toronto* | 107 295 261 | 58 576 944 | 20 867 | 2 807 |
| Toronto East General and Orthopaedic* | 114 558 860 | 77 134 309 | 25 197 | 3 061 |
| Etobicoke General | 68 717 030 | 50 226 551 | 19 499 | 2 576 |
| North York General | 94 307 796 | 56 940 371 | 23 590 | 2 414 |
| Centenary Health Centre, Scarborough | 102 997 012 | 60 994 445 | 22 617 | 2 697 |
| Scarborough General | 108 092 091 | 62 066 105 | 27 601 | 2 249 |

*Hospitals identified for a reduction in funding based on average cost per weighted case.

been more drastic. Consider the hypothetical data in Table 8. If the hospitals had been brought to the average cost per weighted case for their peer group in 1994–95, significant amounts of funds would have been transferred among hospitals. In the peer group of teaching hospitals with high CMIs, for example, the Toronto Hospital would have had its budget reduced by $8 381 298, whereas the Ottawa General Hospital would have

Table 7: Recommended reductions in funding for the 1994–95 fiscal year for peer groups of Ontario hospitals[2]

| Peer group | Total reductions, $ | No. of hospitals in peer group | No. of hospitals affected |
|---|---|---|---|
| Teaching hospitals with a high CMI | 1 842 874 | 10 | 2 |
| Teaching hospitals with a low CMI | 2 375 728 | 6 | 1 |
| Hospitals | | | |
| > 399 beds | 6 785 563 | 10 | 2 |
| 200–399 beds | 4 103 392 | 41 | 4 |
| 100–199 beds | 4 031 329 | 25 | 5 |
| 50–99 beds | 2 383 127 | 37 | 8 |
| < 50 beds | 0 | 56 | 0 |
| Total | 21 522 013 | 185 | 22 |

Table 8: Hypothetical reallocation of funding to Ontario hospitals for the 1994–95 fiscal year if funding were adjusted based on the peer-group average cost per weighted case

| Hospital | Hypothetical revenue for inpatient care,* $ | 1992–93 acute inpatient cost, $ | Difference, $ (and %) |
|---|---|---|---|
| Teaching hospitals with a high CMI | | | |
| Hamilton Civic | 163 853 652 | 164 826 912 | – 973 260 (– 0.59) |
| Kingston General | 88 409 451 | 83 229 312 | + 5 180 139 (+ 6.22) |
| University | 92 663 309 | 95 301 411 | – 2 638 102 (– 2.77) |
| Victoria | 146 100 308 | 148 474 409 | – 2 374 101 (– 1.60) |
| Ottawa Civic | 175 753 769 | 179 721 266 | – 3 967 497 (– 2.21) |
| Ottawa General | 109 278 062 | 100 103 242 | + 9 174 820 (+ 9.17) |
| St. Michael's | 101 985 735 | 98 344 439 | + 3 641 296 (+ 3.70) |
| Toronto | 255 612 098 | 263 993 396 | – 8 381 298 (– 3.17) |
| Wellesley | 74 328 982 | 76 702 643 | – 2 373 661 (– 3.09) |
| Sunnybrook Health Science Centre | 110 470 077 | 107 758 413 | + 2 711 664 (+ 2.52) |
| Teaching hospitals with a low CMI | | | |
| Chedoke–McMaster | 68 192 424 | 70 551 634 | – 2 359 210 (– 3.34) |
| St. Joseph's, Hamilton | 96 313 439 | 89 342 331 | + 6 971 108 (+ 7.80) |
| Hotel Dieu | 38 854 712 | 35 765 691 | + 3 089 021 (+ 8.64) |
| St. Joseph's Health Centre, London | 90 484 754 | 92 987 097 | – 2 502 343 (– 2.69) |
| Mount Sinai | 88 236 092 | 93 510 650 | – 5 274 558 (– 5.64) |
| Womens' College | 50 935 696 | 50 859 714 | + 75 982 (+ 0.15) |
| Hospitals with 400 or more beds | | | |
| Peel Memorial | 59 746 204 | 55 789 263 | + 3 956 941 (+ 7.09) |
| Kitchener–Waterloo | 55 055 787 | 55 555 341 | – 499 554 (– 0.90) |
| Mississauga | 70 211 929 | 60 978 579 | + 9 233 350 (+ 15.14) |
| Oshawa General | 65 588 696 | 59 185 435 | + 6 403 261 (+ 10.82) |
| St. Joseph's Health Centre, Toronto | 51 923 037 | 58 576 944 | – 6 653 907 (– 11.36) |
| Toronto East General and Orthopaedic | 62 697 309 | 77 134 309 | – 14 437 000 (– 18.72) |
| Etobicoke General | 48 519 063 | 50 226 551 | – 1 707 488 (– 3.40) |
| North York General | 58 698 636 | 56 940 371 | + 1 758 265 (+ 3.09) |
| Centenary Health Centre | 56 277 535 | 60 994 445 | – 4 666 910 (– 7.66) |
| Scarborough General | 68 679 146 | 62 066 105 | + 6 613 041 (+ 10.65) |

*The number of weighted cases multiplied by the average cost per weighted case for the peer group to which the hospital belongs (from Table 6; figures in Table 6 are rounded and may not yield these products).

received a budget increase of $9 174 820. In the peer group of teaching hospitals with low CMIs Mount Sinai Hospital would have had its budget reduced by $5 274 558, whereas St. Joseph's Hospital, Hamilton, Ont., would have received an increase of $6 971 108. The Toronto East General and Orthopaedic Hospital, in the peer group of hospitals with 400 or more beds, would have faced a budget reduction of $14 437 000 and the Mississauga Hospital, Mississauga, Ont., a budget increase of $9 233 350.

The results of the recommended 1994–95 funding reallocation in Ontario suggest that the physician's role in determining hospital revenue will become even more important. Equity funding no longer means that hospitals with low average costs per weighted case receive additional funding; high average costs per weighted case are now the basis for funding reductions. In both situations physicians strongly influence the average cost per weighted case and, hence, the outcome for the hospital.

## Conclusion

If physicians fail to record important information in a medical chart the effect on a hospital could be significant. A higher average cost per weighted case is an immediate effect, but physicians and managers should also be concerned about repercussions in the long term. Many local hospitals are seriously discussing rationalization of services (in Windsor, for example). Coalitions of hospitals (such as the Westcare Group, Toronto, the Scarborough Hospitals Coordinating Council, Scarborough, Ont., and the Toronto Academic Health Sciences Council, Toronto) are trying to plan and manage service rationalization systematically. Such rationalization will be based on political factors, referral patterns, service volumes, clinical expertise, and teaching and research needs, among other criteria. However, a hospital's relative economic efficiency in providing service, as measured by average cost per weighted case and other indicators, will likely be an important criterion in deciding which hospitals will provide which services in the future.

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## *Conferences*
*continued from page 1254*

**June 3–4, 1994:** Regional Anesthesia '94
Toronto
Dr. Joseph Kay, coordinator, RA '94, Department of Anaesthesia, Sunnybrook Health Science Centre, 2075 Bayview Ave., North York, ON M4N 3M5; tel (416) 480-4864, fax (416) 480-6039

**June 9, 1994:** Baby-Friendly Initiative: a National Plan for Action — 4th Annual National Workshop for Health Professionals and Policy Makers (cosponsored by Infact Canada, La Leche League and Women's College Hospital)
Toronto
*Abstract deadline: Apr. 21, 1994*
Sylvia Segal, Humber College; tel (416) 675-6622, ext. 4078; fax (416) 675-2015

**June 19–22, 1994:** 5th Symposium on Violence and Aggression (cosponsored by the Regional Psychiatric Centre [Prairies])
Saskatoon
Registration Office, Rm. 125, Kirk Hall, University of Saskatchewan, Saskatoon, SK S7N 0W0; tel (306) 966-5539, fax (306) 966-5567

**Aug. 3–7, 1994:** 8th Annual Support Organization for Trisomy (SOFT) International Conference — Friendship Has No Boundaries
Toronto
David Whitman or Lisa Boniface, SOFT Canada, 420–760 Brant St., Burlington, ON L7R 4B8; tel (905) 632-7755, fax (905) 632-5997

**Oct. 15–16, 1994:** 20th International Tuberous Sclerosis Symposium
Arlington, Va.
Dr. Vicky H. Whittemore, medical director, National Tuberous Sclerosis Association, National Headquarters, 120–8000 Corporate Dr., Landover, MD 20785; tel (301) 459-9888 or 1-800-225-NTSA, fax (301) 459-0394

**Oct. 24–26, 1994:** Bioethics: 2nd World Congress (sponsored by the International Association of Bioethics)
Buenos Aires, Argentina
Escuela Latinoamericana de Bioética, Fundación Dr. J.M. Mainetti, Calle 508 e. 16 y 18, (1897) M.B. Gonnet, Argentina; tel 011-54-21-71-1160, ext. 63; fax 011-54-21-71-2222; or Secretaría en Buenos Aires, Fundación Favaloro — Comité de Etica, Solis 453 (1093) Buenos Aires, Argentina; tel 011-54-1-383-1110, -0098, -1327, -1371, -1468 or -5080, ext. 3105; fax 011-54-1-383-9077, -1474 or -0323